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NEW YORK STATE DEPARTMENT OF HEALTH

The Smallpox Vaccine – What You Need to Know

The smallpox vaccine helps the body develop immunity to smallpox. The vaccine is made from a virus called vaccinia which is a "pox"-type virus related to smallpox. The smallpox vaccine contains the "live" vaccinia virus—not dead virus like many other vaccines. For that reason, the vaccination site must be cared for carefully to prevent the virus from spreading. Also, the vaccine can have side effects.

The vaccine does not contain the smallpox virus and cannot give you smallpox.

Currently, the United States has a big enough stockpile of smallpox vaccine to vaccinate everyone who might need it in the event of an emergency. Production of new vaccine is underway. However, at this time, only designated "first responders" are being vaccinated. These individuals have all volunteered to receive the vaccine.

Length of Protection

Smallpox vaccination provides full immunity for 3 to 5 years and decreasing immunity thereafter. If a person is vaccinated again later, immunity lasts even longer. Historically, the vaccine has been effective in preventing smallpox infection in 95% of those vaccinated. In addition, the vaccine was proven to prevent or substantially lessen infection when given within a few days of exposure. It is important to note, however, that at the time when the smallpox vaccine was used to eradicate the disease, testing was not as advanced or precise as it is today, so there may still be things to learn about the vaccine and its effectiveness and length of protection.

Receiving the Vaccine

The smallpox vaccine is not given with a hypodermic needle. It is not a shot as most people have experienced. The vaccine is given using a bifurcated (two-pronged) needle that is dipped into the vaccine solution. When removed, the needle retains a droplet of the vaccine.

The needle is used to prick the skin 15 times in a few seconds. The pricking is not deep, but it will cause a sore spot and one or two droplets of blood to form. The vaccine usually is given in the upper arm.

If the vaccination is successful, a red and itchy bump develops at the vaccine site in three or four days. In the first week, the bump becomes a large blister, fills with pus, and begins to drain.

During the second week, the blister begins to dry up and a scab forms. The scab falls off in the third week, leaving a small scar. People who are being vaccinated for the first time have a stronger reaction than those who are being revaccinated.

Post-Vaccination Care

After the vaccine is given, it is very important to follow instructions follow to care for the site of the vaccine. (See separate fact sheet) Because the virus is live, it can spread to other parts of your the body, or even to other people. The vaccinia virus (the live virus in the smallpox vaccine) may cause rash, fever, and head and body aches. In certain groups of people, complications from the vaccinia virus can be severe.

Smallpox Vaccine Safety

The smallpox vaccine is the best protection you can get if you are exposed to the smallpox virus. Anyone directly exposed to smallpox, regardless of health status, would be offered the smallpox vaccine because the risks associated with smallpox disease are far greater than those posed by the vaccine.

Even though there has been no smallpox cases in the world since 1978, because of the potential that smallpox may be used in bioterorism, people who would be likely to respond to a case of smallpox are being offered the opportunity to get vaccinated.

Vaccination will take place in stages, with public health and hospital response teams being vaccinated first.

There are side effects and risks associated with the smallpox vaccine. Most people experience normal, usually mild reactions that include a sore arm, fever, and body aches. However, other people experience reactions ranging from serious to life-threatening. People most likely to have serious side effects are: people who have had, even once, skin conditions (especially eczema or atopic dermatitis) and people with weakened immune systems, such as those who have received a transplant, are HIV positive, are receiving treatment for cancer, or are currently taking medications (like steroids) that suppress the immune system.

In addition, pregnant women should not get the vaccine because of the risk it poses to the fetus. Women who are breastfeeding should not get the vaccine. And people under 18 years of age and those allergic to the vaccine or any of its components should not receive the vaccine.

Careful monitoring of smallpox vaccinations given over recent months has suggested that the vaccine may have caused side effects on the heart. There have been reports of heart pain (angina), heart inflammation (myocarditis), inflammation of the membrane covering the heart lining (pericarditis), and/or a combination of these two problems (myopericarditis). Experts are exploring this more in depth. As a precaution, if you have been diagnosed by a doctor as having a heart condition with or without symptoms you should NOT get the smallpox vaccine at this time. These include conditions such as known coronary disease and/or three or more of the following risk factors:

- You have been told by a doctor that you have high blood pressure.
- You have been told by a doctor that you have high blood cholesterol.
- You have been told by a doctor that you have diabetes or high blood sugar.
- You have a close relative (mother, father, brother, or sister) who had a heart condition before the age of 50.
- You smoke cigarettes now.

In the past, about 1,000 people for every 1 million people vaccinated for the first time experienced reactions that, while not life-threatening, were serious. These reactions included a toxic or allergic reaction at the site of the vaccination (erythema multiforme), spread of the vaccinia virus to other parts of the body and to other individuals (inadvertent inoculation), and spread of the vaccinia virus to other parts of the body through the blood (generalized vaccinia). These types of reactions may require medical attention. In the past, between 14 and 52 people out of every 1 million people vaccinated for the first time experienced potentially life-threatening reactions to the vaccine. Based on past experience, it is estimated that 1 or 2 people in 1 million who receive the vaccine may die as a result. Careful screening of potential vaccine recipients is essential to ensure that those at increased risk do not receive the vaccine.

FOR MORE INFORMATION, VISIT: www.health.state.ny.us
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Source: Department of Health and Human Services, Centers for Disease Control and Prevention and New York State Department of Health